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(54) [Title of the Invention] Video Camera

(57) [Abstract]

[Purpose] To allow for the simple and accurate operation of control buttons on a compact and lightweight video camera with a built-in monitor for viewing captured video images even when there are a number of control buttons.

[Constitution] A monitor panel 3 that can be opened and closed is attached to the side of the main body 1 of the video camera, and a monitor 4 for viewing video images is situated inside the monitor panel 3. The control buttons 121-137 used to record, playback and edit video images are located inside on the monitor panel 3 or on the main body 1 of the video camera near the monitor 4, and the other control buttons are arranged on the outside of the monitor panel 3 opposite the monitor 4.

A view of the camera in FIG 1 with the monitor panel open.

4: monitor

121 ~ 137: control buttons

[Claims]

[Claim 1] In a video camera equipped with a monitor for viewing captured video images, a panel that can be opened and closed is attached to the outside of the main body of the video camera, a monitor is situated inside the panel for viewing captured video images when the panel is open, and the control buttons used to record, playback and edit video

~~images~~ are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open.

[Claim 2] The video camera in claim 1, wherein a panel is located on the side of the main body of the video camera, and wherein a monitor is situated on the panel.

[Claim 3] The video camera in claim 2, wherein the control buttons used to record, playback and edit video images with another device are located inside on the monitor panel and the other control buttons are arranged on the outside of the monitor panel opposite the monitor.

[Claim 4] The video camera in claim 3, wherein the control buttons arranged on the outside of the monitor panel opposite the monitor are inoperative when the panel is open.

#### **[Detailed Description of the Invention]**

##### **[0001]**

[Industrial Field of Application] The present invention relates to a video camera with a video recorder and, more specifically, to a video camera with a monitor for viewing captured video images.

##### **[0002]**

[Prior Art] In recent years, video cameras have become more diverse to meet different consumer needs with new functions added to various kinds of video recording devices. There have also been technological improvements such as the large-scale integration of circuits. In addition, video cameras have become smaller, thinner and lighter.

[0003]

[Problem Solved by the Invention] Unfortunately, the number of control buttons has increased with each new added function. The size and spacing of the buttons have also become smaller as video cameras have become smaller and more compact. This has made the control buttons more difficult to use and has increased the likelihood of mistakes.

[0004] In other words, the need to place more control buttons on smaller video cameras has led to smaller buttons that are more difficult for operators to use. In multiple function video cameras, the buttons for various functions have to be operated in real time. Because buttons for other functions are located nearby, the operator is likely to make mistakes until he or she has become proficient at using the camera.

[0005] The control buttons include buttons used during the recording process such as shutter speed buttons, fade out buttons, digital title buttons and other mode switching buttons, buttons used during the playback process such as the play button, the fast forward button and the rewind button, and setting buttons such as date and time buttons and mode setting buttons. As a result, there is a large number of buttons and these buttons are difficult to operate.

← NO  
edit  
process

[0006] In light of this problem, the purpose of the present invention is to allow for the simple and accurate operation of control buttons on a compact and lightweight video camera.

[0007]

[Means of Solving the Problem] The present invention is a video camera equipped with a monitor for viewing captured video images, in which a panel that can be opened and closed is attached to the outside of the main body of the video camera, a monitor is situated inside the panel for viewing captured video images when the panel is open, and the control buttons used to record, playback and edit video images are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open.

[0008] The present invention is also a video camera, in which a panel is located on the side of the main body of the video camera and a monitor is situated on the panel, in which the control buttons used to record, playback and edit video images with another device are located inside on the monitor panel or on the main body of the video camera near the monitor and the other control buttons are arranged on the outside of the monitor panel opposite the monitor, and in which the control buttons arranged on the outside of the monitor panel opposite the monitor do not work when the panel is open.

[0009]

[Operation] In the video camera of the present invention, a panel that can be opened and closed is situated on the main body of the video camera, and the images captured by the video camera can be viewed when the panel is open. Because the buttons used to control the video camera are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open, the small space is utilized efficiently and the buttons are easy to operate.

[0010]

[Working Examples] The following is an explanation of the present invention with reference to working examples. Here, the working examples are video tape recorders integrated with cameras.

[0011] FIG 1 is a simplified drawing of the video camera in a working example of the present invention. In this figure, 1 is the main body of the video camera, 2 is the video lens, and 3 is the monitor panel on the side of the main body 1 of the video camera. The monitor panel can be opened and closed to the outside. Here, 101~105 are the control buttons on the main body 1 of the video camera, and 106~120 are the control buttons on the outside surface of the monitor panel 3.

[0012] FIG 2 shows the monitor panel 3 being opened to the outside in the direction of the arrow. When the monitor panel 3 is open, the monitor 4 on the panel 3 can be used to view video images captured through the video lens 2. Here, control buttons 121~123 are arranged on the inside surface of the monitor panel 3, and control buttons 124~137

that can be operated when the panel 3 is open are arranged on the inside surface of the main body 1 of the video camera.

[0013] In this working example, the control buttons for recording, playing back and editing video images with another device are control buttons 121~123 on the monitor panel 3 next to the monitor 4, and control buttons 124~137 on the side of the main body 1 of the video camera when the monitor panel 3 is open as shown in FIG 2. The control buttons 106~120 on the outside of the monitor panel 3 opposite the monitor 4 are used for other purposes. When the monitor panel 3 is open, the control buttons 106~120 on the outside of the monitor panel 3 are inoperative.

[0014] A video camera with this configuration is equipped with photographic elements, signal processing circuits, and recording circuits inside the main body 1. Images captured by the video lens 2 are recorded on videotape and viewed on the monitor 4 inside the monitor panel 3. A person viewing the monitor 4 and operating the control buttons 121~137 near the monitor 4 while photographing and recording images can easily switch modes, change the shutter speed, fade in, fade out and create digital titles.

[0015] Because the control buttons not used to record, play back and edit video images and the control buttons likely to cause mistakes during use are located on the outside of the monitor panel 3 opposite the monitor 4 where they are unlikely to cause a recording error, the control buttons are simpler to use and more likely to be used correctly.

[0016] Because these control buttons 106~120 are not used when the monitor panel 3 is open and the control buttons 106~120 do not operate when the monitor panel 3 is open even when pressed, image recording and editing can be performed error free.

[0017] Because the control buttons used to record, play back and edit video images are located near the monitor 4 on the monitor panel 3, which is viewed without a sight, and the other control buttons are located on the outside surface of the monitor panel 3 opposite the monitor 4, the control buttons are simpler to use and more likely to be used correctly. Also, the arrangement of the control buttons uses the small space efficiently and allows for the creation of smaller and lighter video cameras.

[0018] FIG 3 is a simplified drawing of another working example of the present invention. Here, the components identical to those in FIG 1 are denoted by the same numbers. In this figure, control buttons 141~160 are located on the outside surface of the monitor panel 3. These control buttons 141~160 are not used to record, play back and edit video images.

[0019] FIG 4 shows the monitor panel 3 when opened. A monitor 4 is located on the inside surface of the monitor panel 3 for viewing images, and the control buttons 161~180 used to operate the device when the panel is open are located on the main body 1 of the video camera.

[0020] In this working example, the monitor panel 3 opens and closes up and down as shown in FIG 4. When the monitor panel 3 is open, only control buttons 161~180 are used to record, play back and edit video images. As a result, the control buttons in this

working example can be used easily and correctly while viewing the monitor 3. Because the control buttons 141~160 unrelated to these operations are located on the side opposite the monitor 4, mistakes are unlikely to occur and the effect is the same as the other working example.

[0021]

[Effect of the Invention] In the video camera of the present invention, a panel that can be opened and closed is situated on the main body of the video camera, and the images captured by the video camera can be viewed when the panel is open. Because the buttons used to control the video camera are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open, the small space is utilized efficiently, the camera is compact and lightweight, and the buttons are easy to operate.

[Brief Explanation of the Drawings]

[FIG 1] A simplified drawing of a working example of the present invention.

[FIG 2] A view of the camera in FIG 1 with the monitor panel open.

[FIG 3] A simplified drawing of another working example of the present invention.

[FIG 4] A view of the camera in FIG 3 with the monitor panel open.

[Key to the Drawings]

1: main body of the video camera

2: video lens  
3: monitor panel  
4: monitor  
101~137: control buttons  
141~180: control buttons

[FIG 1] A simplified drawing of a working example of the present invention.

1: main body of the video camera  
2: video lens  
3: monitor panel  
101~120: control buttons

[FIG 2] A view of the camera in FIG 1 with the monitor panel open.

4: monitor  
121~137: control buttons

[FIG 3] A simplified drawing of another working example of the present invention.

141~160: control buttons

[FIG 4] A view of the camera in FIG 3 with the monitor panel open.

161~180: control buttons